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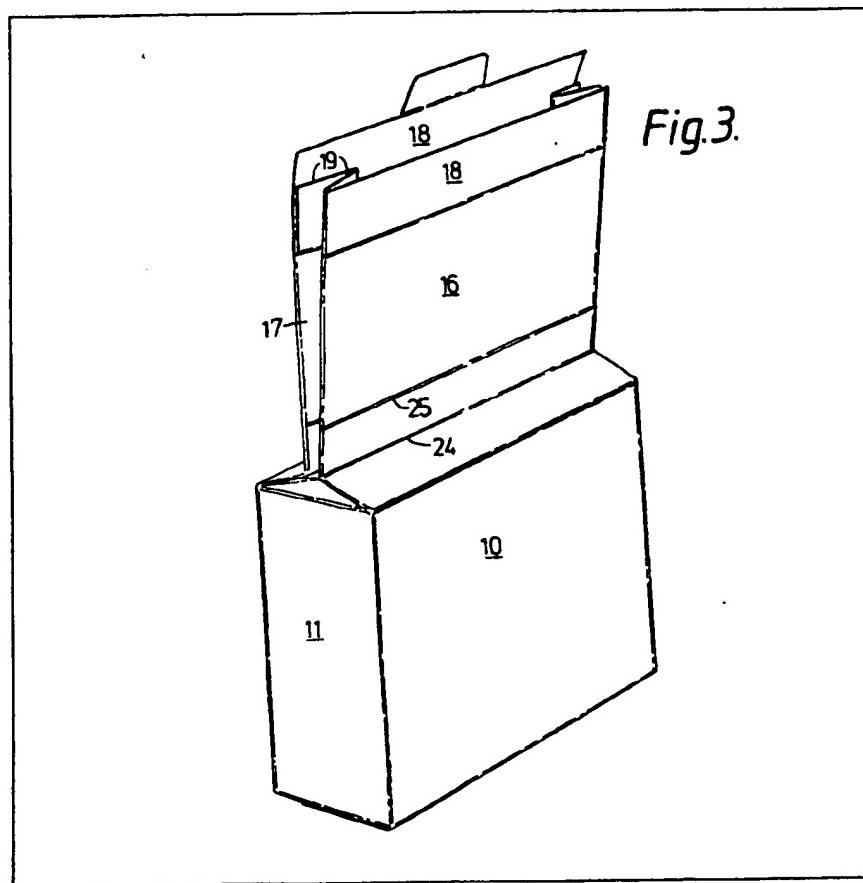
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(54) Container of variable capacity

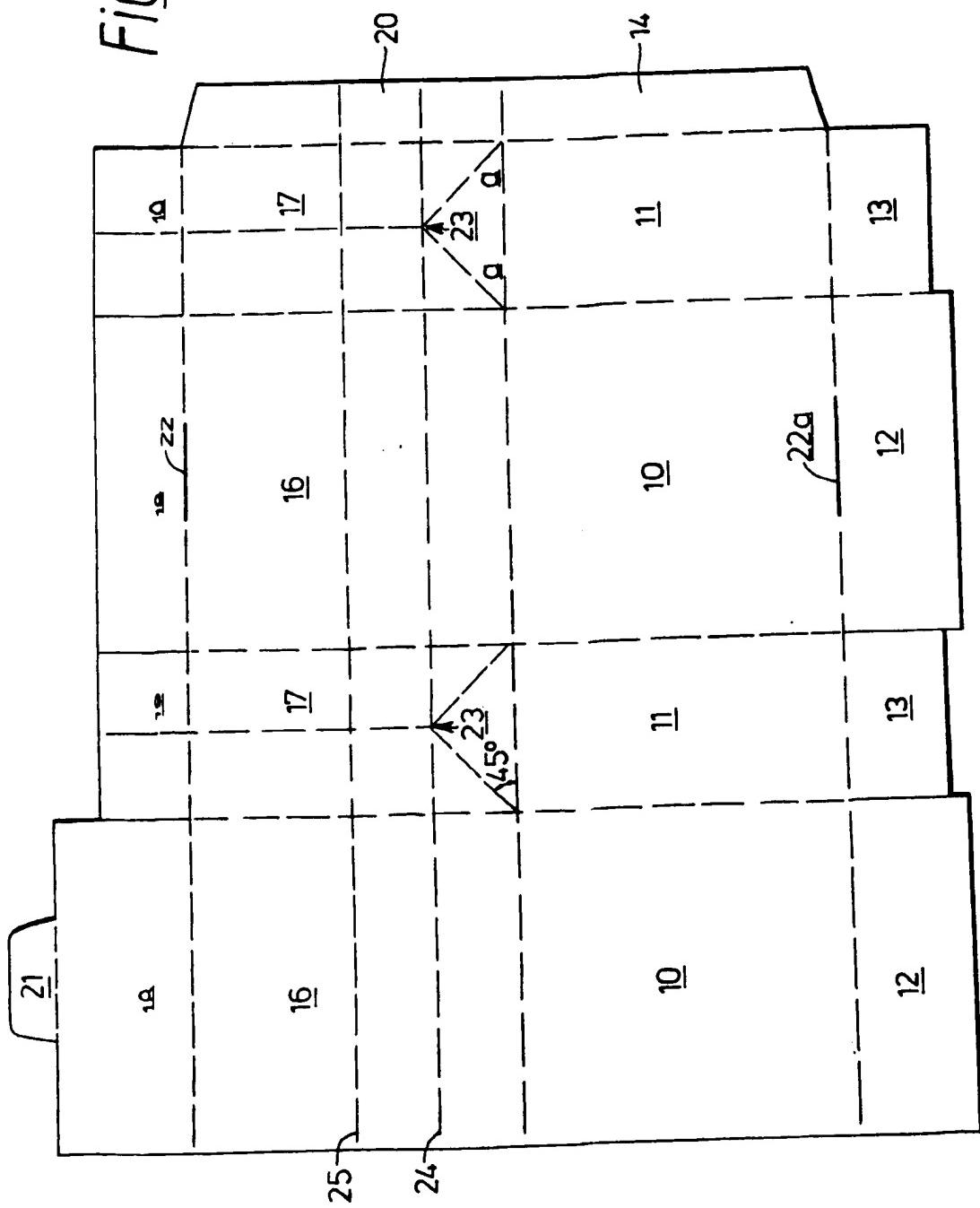
(57) A rectangular container made from a folded blank, e.g. of carton-board, which is designed to be progressively reduced in size as its contents are removed, in order to save space has a lower box portion and an upper tubular portion provided with closure means. The tubular portion has fold lines which allow it a) to be folded and collapsed to a substantially flat condition b) to close the top of the box portion and c) to be folded downwards to overlap a side of the box portion.



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Fig.1.



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Fig.3.

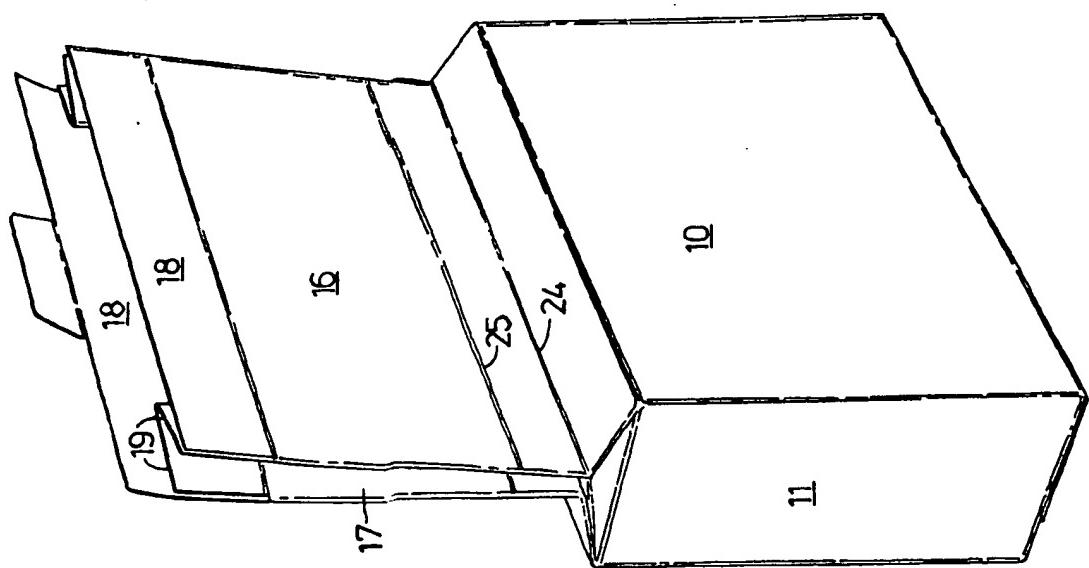
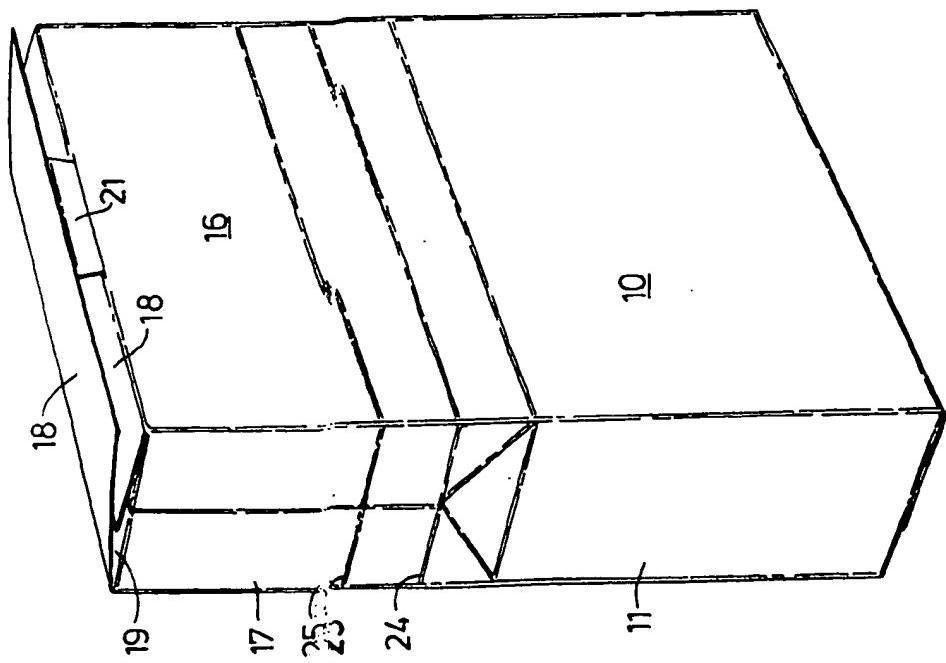
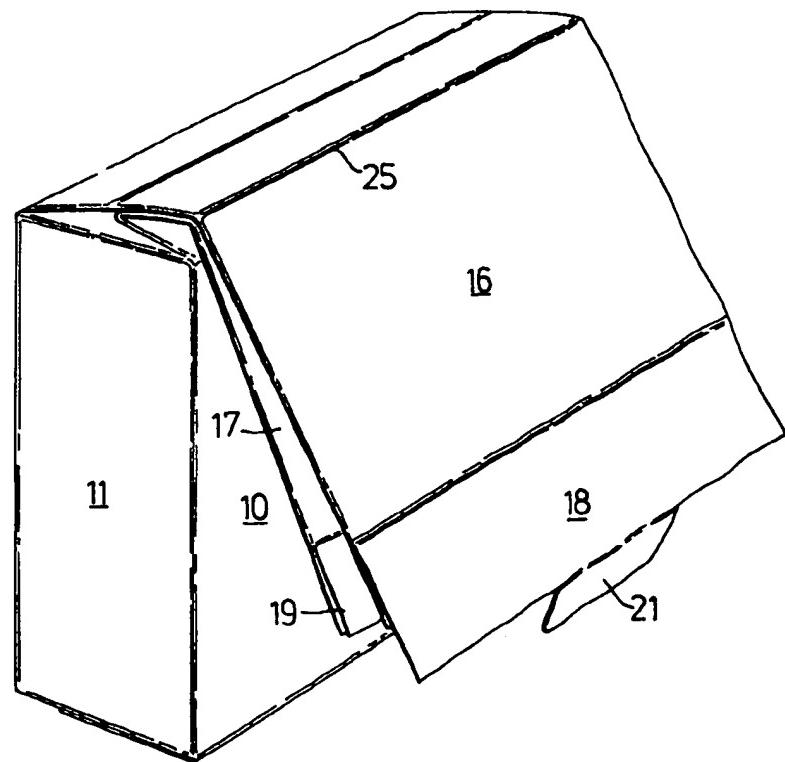


Fig.2.



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*Fig.4.*

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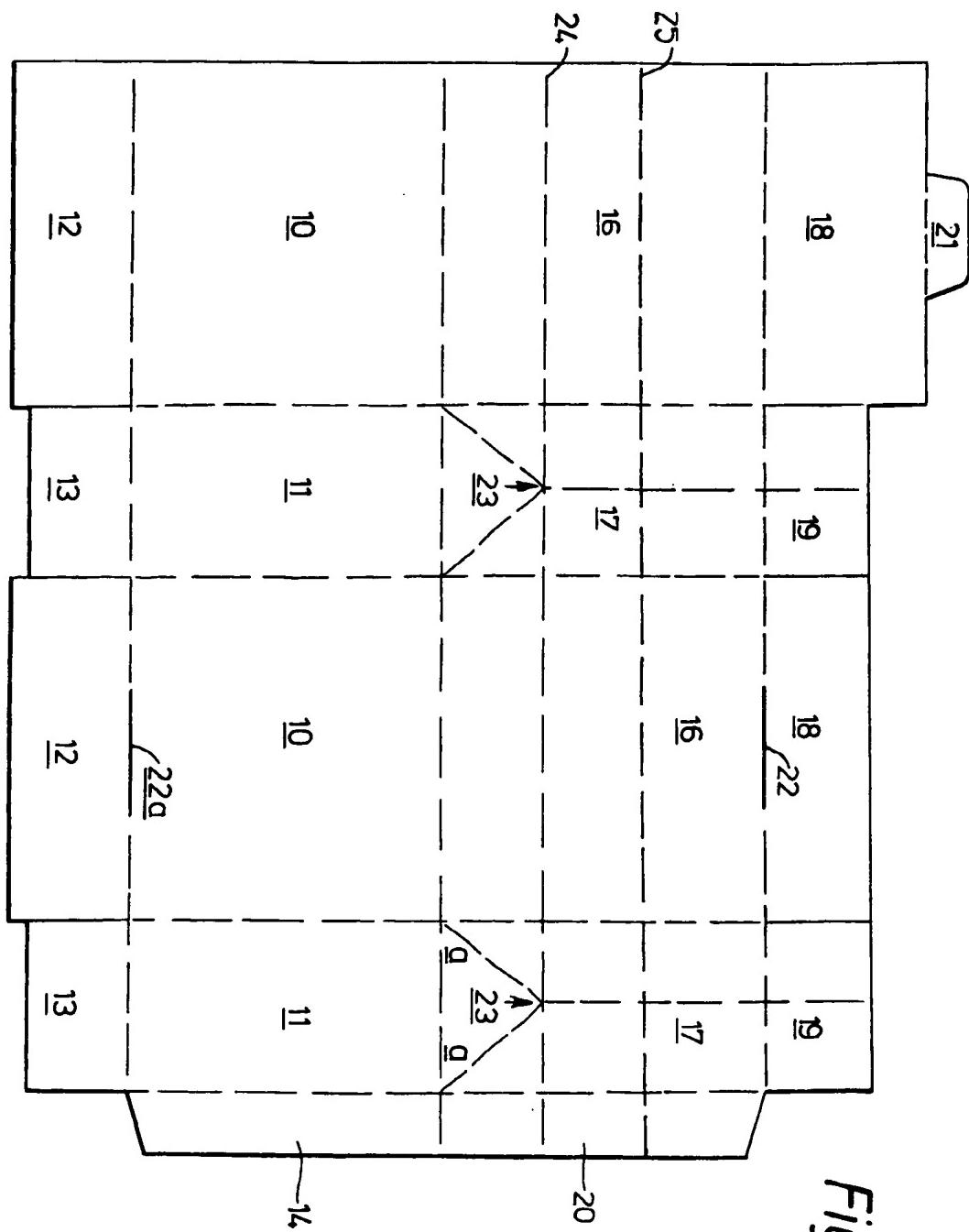


Fig.5.

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Fig.6.

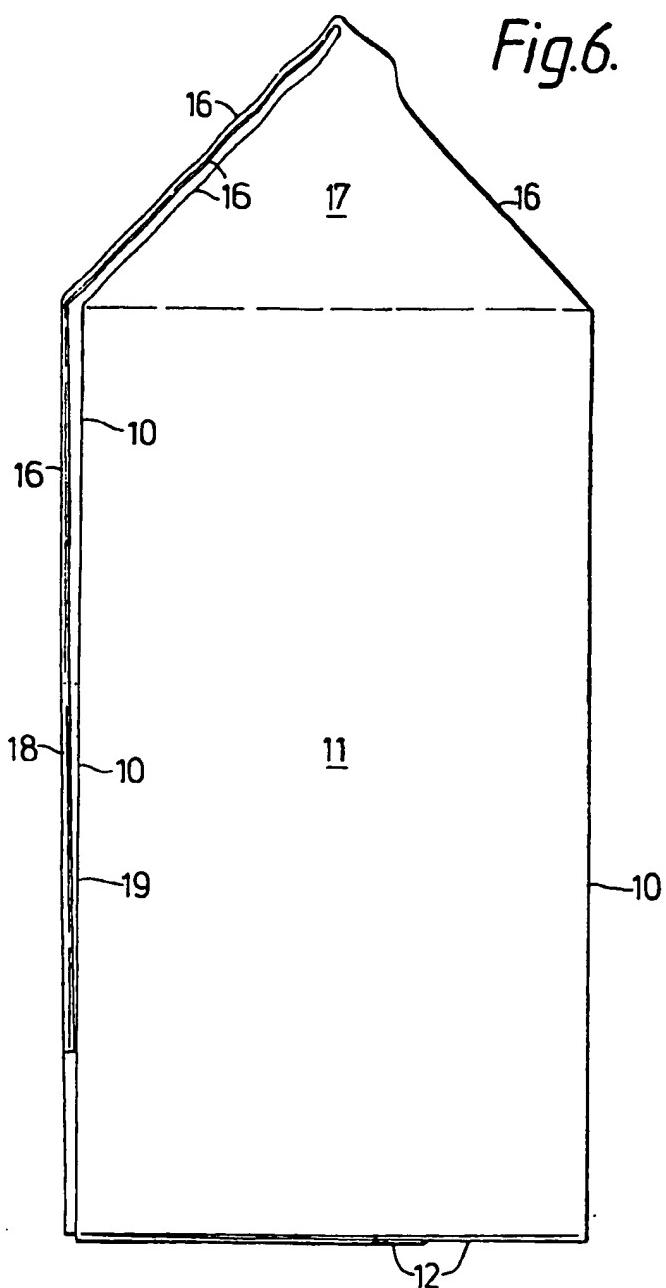
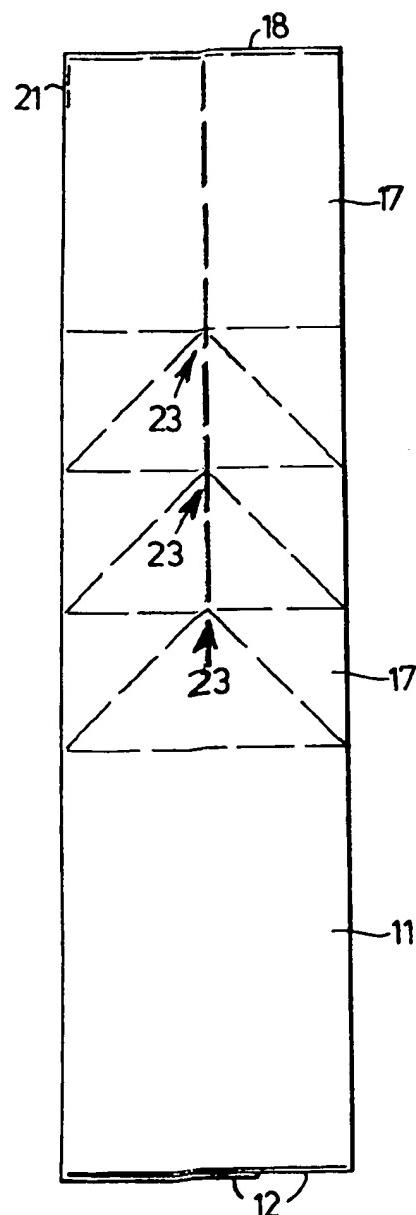


Fig.7



## SPECIFICATION

### Container made from a folded blank

#### 5 Technical field

The container is erected from a folded blank of stiff material, e.g. cartonboard or a suitable plastics material. The container which is rectangular has been designed for holding food to be kept in a freezer where storage space is limited and a customer may wish to remove some of the food from the upper portion of the container and then replace the container in the freezer until more of the food is required. In order to save space in the freezer the container has been provided with fold lines which enable the customer to fold the container to a smaller size after some of its contents have been removed, leaving the container with an empty upper portion. The resulting smaller container preserves a neat rectangular appearance and is re-closed to protect its contents.

#### Background art

It is known to provide flexible paper bags with a top opening which is held closed by stapling or a clip. After opening the bag and removing some of its contents the opening can be closed and the upper portion of the bag rolled over on itself to take up the surplus length of the bag. This cannot of course be done if the container is made from a blank of stiff material for better protection of its contents. Furthermore, such partly rolled-up bags are unsightly and also do not provide stiff flat surfaces or panels for decorative or informative printing matter.

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#### Invention

A container made from a folded blank of stiff material and comprising a rectangular box portion having an upper extension in the form of a rectangular tube provided with top closure means, wherein the tube is formed with fold lines which allow it to be folded and collapsed to a substantially flat condition, folded to close the top of the box portion and folded downward to overlap a side of the box portion, means being provided for releasably locking the tube in its closure and overlapping condition.

The invention also relates to a blank of stiff material shaped and provided with the fold lines required for erection of the container and its subsequent reduction in size.

#### Drawings

By way of example the invention will now be described with reference to the following drawings.

55 *Figure 1* shows a flat foldable blank for making a container.

*Figures 2 - 4* are perspective views showing how the erected container is reduced in size by folding along pre-formed fold lines.

60 *Figure 5* shows a slightly modified flat foldable blank for making a container.

*Figure 6* is a cross-section through a container made from the blank of *Figure 5* and reduced in size to produce a gable-top container.

progressively reduced in size.

Referring to *Figure 1* a blank of stiff material, e.g. cartonboard which may be waxed, is formed with fold lines shown in chain line. The blank comprises a

- 70 section for forming a box portion and a section for forming an upper extension of the box portion in the form of a collapsible tube. The box portion section has pairs of side panels 10, 11, bottom closure flaps 12, 13 and an adhesive flap 14. The tube section has
- 75 pair of side panels 16, 17, top closure flaps 18, 19 and an adhesive flap 20. A locking tab 21 carried by one of the flaps 18 is adapted to be received by a slit 22 in the tube section or by a slit 22a in the box portion section. Each side panel 17 is formed with an
- 80 inverted Y arrangement of fold lines 23 with angles  $\alpha$  of 45°, the stem line of each Y being extended to bisect the adjacent flap 19. The tube section also has two parallel fold lines 24, 25 which extend right across the blank parallel with the fold line which
- 85 hingedly connects the tube section and the box portion section. The arms of the Y arrangements 23 diverge from the fold line 24 to meet what will become the tops of the corners of the box portion in the erected container.
- 90 The blank of *Figure 1* is folded to form an oblong box portion having an oblong upper extension in the form of a collapsible tube, adhesive being applied to the appropriate bottom closure flap 12 to preserve the folded bottom closure of the box portion and
- 95 also to the flaps 14, 20 which become bonded to the panels 10, 16 respectively. The resulting container is filled through its open top with food, e.g. beefburgers, and then the top closure flaps 18, 19 are folded to close the top of the tube and the tab 21 inserted
- 100 into the slit 22 to retain the top flaps in their closed position as shown in *Figure 2*. The resulting filled container is at its maximum size and may be placed by a customer in his freezer or larder.
- If the customer wishes to remove the food in the
- 105 upper portion of the container, i.e. the tube, he frees the tab 21, opens the top closure flaps 18, 19 and lifts out the food. He then pushes inwards the opposing pair of side panels 17 and flaps 19 until he has collapsed the tube substantially flat as shown in
- 110 *Figure 3*, the lower portion of the tube temporarily forming a ridged closure for the open top of the box portion. He folds the collapsed tube downwards across the top of the box portion and then folds the tube around the top edge of the adjacent side panel
- 115 10, as shown in *Figure 4*, until that side of the box portion is overlapped partly by the tube and partly by the top closure flaps 18, 19. The tab 21 is then inserted into the slit 22a to hold the collapsed tube in its new condition in which part of the tube forms a
- 120 flat top closure for the still filled box portion and part of the tube overlaps the side of the box portion. The resulting closed container is thus reduced in size to about half its former capacity; it still possesses a neat oblong shape and it continues to protect the
- 125 remaining food in the box portion. To remove further food, the tab 21 is disengaged from the slit 22a, the tube is unfolded to its condition shown in *Figure 3* and is then opened out to its former oblong shape to permit access to the food still in the
- 130 container.

Referring to Figure 5, the foldable blank is similar in all respects to that of Figure 1, including the same reference numerals for corresponding parts, except that the angles  $\alpha$  of the inverted Y arrangements of 5 fold lines are greater than  $45^\circ$ . Consequently, when the container erected from the blank of Figure 5 is part emptied and the tube folded and collapsed to its closure and overlapping condition, the top closure formed by the tube for the box portion is not 10 substantially flat but is of gable-top shape as shown in Figure 6.

Referring to Figure 7, this a side view of an oblong container not yet reduced in size which has been made from a foldable blank of stiff material substantially similar to that of Figure 1 but having an extra fold line above and parallel to fold line 25. If Figure 7 be compared with Figure 2 it will be seen that in Figure 7 the inverted Y arrangements of fold lines has three pairs of divergent lines or arms on the 20 same stem line. Consequently this container can be reduced in height in three successive stages following three partial removals of its contents in the tube. The box portion is provided with three slits 22a (not shown) spaced vertically down one side. These slits 25 receive in succession the locking tab 21 of the folded collapsed tube.

#### CLAIMS

- 30 1. A container made from a folded blank of stiff material and comprising a rectangular box portion having an upper extension in the form of a rectangular tube provided with top closure means, wherein the tube is formed with fold lines which allow it to be 35 folded and collapsed to a substantially flat condition, folded to close the top of the box portion and folded downward to overlap a side of the box portion, means being provided for releasably locking the tube in its closure and overlapping condition.
- 40 2. A container according to claim 1, wherein the tube is formed with upper and lower parallel fold lines which extend continuously around it each at a fixed distance above the top of the box portion, the spacing of the upper fold line from the top of the box 45 portion being sufficient to enable the tube when folded about the upper fold line and collapsed to assume said closure and overlapping condition.
3. A container according to claim 1, wherein the tube is adapted to provide when folded and collapsed to its substantially flat condition a substantially flat top closure for the box portion.
4. A container according to claim 1, wherein the tube is adapted to provide when folded and collapsed to its substantially flat condition a gable-top 55 closure for the box portion.
5. A container according to claim 1, wherein said side of the box portion when overlapped by the collapsed tube has its upper portion overlapped by the tube and its lower portion overlapped by flaps 60 which constitute said top closure means.
6. A container according to claim 1, wherein the tube has a pair of opposing sides which are adapted to fold inwards between its other pair of opposing sides to permit the tube to be collapsed substantially 65 flat.

7. A container according to claims 2 and 6, wherein each side of said one pair is formed with an inverted Y arrangement of fold lines, the arms of the Y diverging downward from the lower parallel fold 70 line to meet the top edge of the box portion at two corners thereof.

8. A container according to claim 1, wherein the locking means are a tab on the tube and a slit in the box portion for receiving the tab.

75 9. A container made from a folded blank of stiff material substantially as described herein with reference to and as shown in Figure 2 of the accompanying drawings.

10. A blank of stiff material shaped and provided 80 with fold lines substantially as shown in Figure 1, or Figure 5, of the accompanying drawings.

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